be. Fraenkel found typhoid bacilli more frequently in the lumbar vertebræ, probably, because of the larger amount of bone marrow in them. The lumbar spine is also normally subject to greater stress and strains than the remainder of the spinal column. Typhoid spine is almost never fatal, hence post-mortem study of recent cases is wanting. The onset of symptoms was usually gradual, but in many was abrupt and acute, occurring in a few cases during the febrile period, most often during convalescence, and quite frequently some weeks or months, in one case four years, after recovery from typhoid fever. The Widal tests, when taken, have been positive. Pain over the spine has been the most constant and positive symptom, as well as usually the first to attract attention. The local pain, however, has sometimes been shadowed by the greater intensity of the referred pains. Local pain is aggravated by movements or jarring of the spine and local tenderness can be elicited and the spine is rigid in all cases, in only three or four cases did suppuration result requiring incision. The Roentgen-ray in the later stages affords the best proof of a local lesion. The great majority of the patients experienced severe or even excruciating radiating pains, especially on movements of the spine. The best form of treatment is to place the spine at as near absolute rest as possible. This may be accomplished by either plaster-of-Paris cast, spinal brace, or by continuous traction from head and feet. Pain often has ceased abruptly after fixation of the spine. Excessive pain can be relieved by the local application of heat, by aspirin or sedatives, but often opiates will be needed. Elimination should be pushed to combat the toxemia. In prolonged cases vaccines may be of service.

Tuberculosis of the Knee-joint in Childhood.—Sever and Fiske (*Amer. Jour. Orthop. Surg.*, 1915, xii, 597) studied a series of 638 cases admitted to the Orthopedic Department of the Children's Hospital, in Boston, from 1880 to 1910. The object of this investigation has been to furnish some general statistics, based on this large number of cases, to report as far as possible the varying symptoms, pathology, etc., that were met with, and to record the results of treatment under the different methods employed, as they applied to different conditions and groups. It was found that the males predominate and the right and left knees are equally affected. Trauma occurs in 30 per cent., tuberculous family history in 13.5 per cent., involvement of other joints 11.3 per cent., in order of frequency the hip, spine, ankle, elbow and wrist. Predominant symptoms occur in the following order of frequency: swelling, limitation of motion, flexion, heat, pain, subluxation, abscess, sinus, fluid, knock-knee, and outward rotation. Abscess occurred in 27 per cent. of all cases. Osteal involvement predominates in children, but synovial disease is found frequently with it. Disease of tibia alone is rare, involvement of tibia and femur together is commonest, of femur alone is next. Bony enlargement is commonest in femur alone, and in the internal condyle. Treatment was by traction, plaster, splint, and operation. Thirty-five per cent. were operated upon, the relative frequency of the operations being forcible correction, incision and drainage, osteotomy, tenotomy, excision, arthrotomy, aspiration and amputation. The first four types of operation had to be repeated in many cases. The average duration of treatment was 4.9 years, cases

not operated on averaging 4.2 years, those operated averaging 5.8 years. The results of treatment of 251 of these cases of three years or more duration under treatment show that about 65 per cent. had satisfactory results, 35 per cent. unsatisfactory, the oldest cases showing the best results, healing and ankylosis increasing with duration of the lesion. Although the cases operated on undoubtedly represent the severest types, it is significant that much better results were obtained in the non-operated cases, one-quarter of the latter as compared with one-half of the former having undesirable results. Forcible correction and excision were the only operations in which more favorable than unfavorable results were recorded. Outside of the few probably favorable cases which received splint treatment only, the best results in the non-operated cases were obtained by the combined splint and plaster treatment, if the healed cases be taken as a criterion, otherwise there is little choice in the method of treatment. The results of those cases which were in the worst condition at admission, as represented by the groups which were put in traction, or had abscesses, compare unfavorably with the general average, showing a predominance of unsatisfactory results and many unhealed cases. The results of those cases of abscesses not operated are, however, far better than those which were opened.

Tuberculosis of the Hip, an Analysis of Twenty-five Selected Cases.—ALLISON (*Amer. Jour. Orthop. Surg.*, 1915, xii, 623) says that these cases were treated at the Saint Louis Children's Hospital within the last four years, and have gone on to recovery in that they have ceased to have symptoms and have weight-bearing joints. The analysis of these cases is intended to demonstrate the value of the Bradford traction-abduction splint in the routine treatment in the ambulatory stage of hip-disease. In view of the fact that the extent of the ankylosing process is dependent upon the intensity of the disease process and the amount of destruction of the joint cartilage, it is very essential to protect the hip-joint both from weight and from motion in the acute stages of the disease, and during the convalescent stage traction properly applied is a most important element in successful treatment. Allison is not of the opinion that an ankylosed joint is the best result that can be obtained in hip-disease, and he feels that what Lorenz calls the "weight-bearing therapy" is an incomplete and careless manner of treatment. He has gained from the cases studied the following facts: The average shortening where plaster-of-Paris spicas were used was 1.45 inches; where the Bradford traction-abduction splint was used it was 0.56 of an inch. Where plaster-of-Paris spicas were used the average atrophy of the thigh was 1.47 inches, and of the calf $\frac{1}{2}$ inch; where the Bradford traction-abduction splint was used the average atrophy of the thigh was 1.27 inches and of the calf 0.76 of an inch. The use of traction, therefore, does not materially increase the amount of atrophy. Motion was preserved to all the hip-joints treated with traction-abduction splint and was lost in 60 per cent. of the cases treated with plaster-of-Paris spicas. Abscesses have occurred in 33 per cent. of the cases treated with plaster-of-Paris spicas, and in 40 per cent. of the cases treated with traction-abduction splints. Of the cases treated with plaster-of-Paris spicas there were six cases that developed